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**INTERCONNECTING ASSEMBLY IN COMBINATION
WITH PRIMARY AND AUXILIARY EYEGLASSES**

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BACKGROUND OF THE INVENTION

Field of the Invention

One embodiment of the present invention relates to an interconnecting assembly in
5 combination with primary and auxiliary eyeglasses. More particularly, the auxiliary eyeglasses
may be detachably connected to the primary eyeglasses.

Description of Related Art

U.S. Patent No. 6,264,323, which issued to Chao on July 24, 2001, relates to an
10 assembly of primary and auxiliary eyeglasses which are interconnected by a retainer clip.

U.S. Patent No. 6,341,864, which issued to Ng on January 29, 2002, relates to clip-on
auxiliary lenses utilizing an elastic jaw in the shape of a half arch.

U.S. Patent No. 6,375,322, which issued to Takagi on April 23, 2002, relates to front
hook eyeglasses and method of attaching front hook eyeglasses onto eyeglasses body.
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BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is an exploded perspective view of the interconnecting assembly of an
embodiment of the present invention in combination with primary and auxiliary eyeglasses;

Fig. 2 is a schematic view showing how the interconnecting assembly of an
20 embodiment of the present invention is connecting the auxiliary eyeglasses to the primary
eyeglasses;

Fig. 3 is a schematic view showing the initial stage of the movement of the insert into
the clamping plates according to an embodiment of the present invention;

Fig. 4 is a schematic view showing that the insert is positioned in the clamping plates

by the combination of rib and groove according to an embodiment of the present invention;

Fig. 5 is a schematic view showing one embodiment of the interconnecting assembly of the present invention;

Fig. 6 is a schematic view showing another embodiment of the interconnecting assembly of the present invention;

Fig. 7 is a schematic view showing another embodiment of the interconnecting assembly of the present invention;

Fig. 8 is an exploded perspective view of another embodiment of the present invention; and

Fig. 9 is a schematic view showing the assembly of the primary and auxiliary eyeglasses shown in Fig. 8.

DETAILED DESCRIPTION OF THE INVENTION

Referring now to Fig. 1, an embodiment of an eyeglasses assembly of the present invention is shown. As seen in this Fig. 1, the eyeglasses assembly has a first pair of eyeglasses (10) and a second pair of eyeglasses (20).

The first eyeglasses (10) has two first lenses (11) and a first bridge (12) interconnecting the two first lenses (11) together. The first bridge (12) has a retainer (30) formed on the first bridge (12). The retainer (30) has an upper clamping plate and a lower clamping plate (31,32). The lower clamping plate (32) has a restricting groove (321) defined in a front portion of the lower clamping plate (32).

The second eyeglasses (20) has two second lenses (21) and a second bridge (22) interconnecting the pair of second lenses (21). The second bridge (22) has a rib (40) formed on a rear portion of the second bridge (22) to correspond to the restricting groove (321).

With reference now to both Figs 1 and 2, it is to be noted that the interconnecting assembly of this embodiment of the present invention comprises: (a) the retainer (30) that is integrally formed on the first bridge (12); and (b) the rib (40) that is integrally formed on the second bridge (22). A portion of the second bridge (22) with the rib (40) is hereinafter referred to as an insert (50) as shown in Fig. 2, for example.

It is noted that the upper clamping plate (31) has an inclined inner face formed on a free end of the upper clamping plate (31) and the lower clamping plate (32) also has an inclined inner face formed on a free end of the lower clamping plate (32), thereby forming an enlarged space (60) defined between the upper clamping plate (31) and the lower clamping plate (32). The restricting groove (321) is thus defined adjacent the inclined inner face of the lower clamping plate (32).

With reference to Figs. 2, 3 and 4, it is noted that both side faces (i.e., the faces adjacent upper clamping plate (31) and lower clamping plate (32)) of the front portion of the insert (50) are flat when the insert (50) initially extends into the enlarged space (60). Thus, neither the upper clamping plate (31) nor the lower clamping plate (32) are forced to move away from each other (instead, the upper clamping plate (31) and the lower clamping plate (32) remain essentially at their original positions). Further, when the rib (40) enters the enlarged space (60) between the upper clamping plate (31) and the lower clamping plate (32) the rib (40) also will not force the upper clamping plate (31) or the lower clamping plate (32) to move away from each other (instead, the upper clamping plate (31) and the lower clamping plate (32) remain essentially at their original positions). This is due to the dimension of the enlarged space (60) being larger than a dimension of the insert (50) together with the rib (40). Only when the rib (40) passes the joint between the inclined inner face of the lower clamping plate (32) and the restricting groove (321), a slight bending (e.g., of the lower clamping plate (32)) occurs to

allow the insert(50) (including the rib (40)) to pass over the joint between the inclined inner face of the lower clamping plate (32) and the restricting groove (321). Further, when the rib (40) is fittingly (and removeably) received in the restricting groove (321), the first eyeglasses (10) is secured to the second eyeglasses (20).

5 With reference now to Fig. 5, another embodiment of the present invention is shown. As seen in this Fig. 5, the retainer (30) is integrally formed with the restricting groove (321). The insert (50) of the second eyeglasses (20) has two truncated corners (51) oppositely formed on top and bottom faces of the insert (50) (i.e., the faces adjacent upper clamping plate (31) and lower clamping plate (32)) to correspond to the space between the upper and lower clamping
10 plates (31,32). Therefore, the movement of the insert (50) into the retainer (30) is easily accomplished.

 With reference now to Fig. 6, another embodiment of the present invention is shown. As seen in this Fig. 6, the upper clamping plate (31') of retainer (30') has an inclined face on the inner face of the upper clamping plate (31') and the lower clamping plate (32') of retainer (30')
15 has an inclined face on the inner face of the lower clamping plate (32') to correspond to the inclined face of the upper clamping plate (31'). Accordingly, the enlarged space (60') is defined between the upper and lower clamping plates (31',32'). Furthermore, a restricting groove (321') is defined in the front portion of the inner face of the upper clamping plate (31') and the rib (40') is formed on a rear portion of a top face of the insert (50') to correspond to the restricting
20 groove (321'). With the enlarged space (60') defined between the upper clamping plate (31') and the lower clamping plate (32'), the movement of the insert (50') into the retainer (30') is easily accomplished.

 With reference now to Fig. 7, a further embodiment of the interconnecting assembly of the present invention shows that the retainer (30'') has two restricting grooves (33) respectively

defined in the inner faces of the upper clamping plate (31'') and the lower clamping plate (32''). The insert (50'') has two ribs (40a) respectively formed on opposite faces of the insert (50'') to correspond to the restricting grooves (33). Therefore, the ribs (40a) are able to be fittingly (and removeably) received in the corresponding restricting grooves (33).

5 With reference now to Figs. 8 and 9, a still further embodiment of the present invention shows that the interconnecting assembly includes a retainer 7. The retainer (7) includes an upper clamping plate (71) and a lower clamping plate (72) provided with first and second restricting grooves (73,74). A pair of first eyeglasses (8) has two first lenses (81) and a first bridge (82) interconnecting the first lenses (81). The first bridge (82) has a first rib (83) formed
10 on a bottom face of the first bridge (82). A pair of second eyeglasses (9) has two second lenses (91) and a second bridge (92) interconnecting the two second lenses (91). The second bridge (92) has a second rib (93) formed on a bottom face of the second bridge (92).

When the retainer (7) is used to interconnect the first eyeglasses (8) and the second eyeglasses (9), the first bridge (82) extends into the retainer (7) to have the first rib (83)
15 received in the first restricting groove (73), then the second bridge (92) extends into the retainer (7) to have the second rib (93) received in the second restricting groove (74). Thus, the first eyeglasses (8) and the second eyeglasses (9) are secured by the retainer (7).

It is noted that when the first eyeglasses and the second eyeglasses are connected by the retainer, due to the enlarged space between the upper clamping plate and the lower clamping
20 plate and/or the truncated corners on the insert, the movement of the insert into the retainer is easy and smooth.

Furthermore, at the initial stage of the movement of the insert into the retainer, essentially no bending of the upper clamping plate and the lower clamping plate occurs, which bending could tend to break the connection between the upper clamping plate and the lower

clamping plate (thus, the life span of the retainer may be maximized).

In another embodiment of the present invention an interconnecting assembly in combination with primary and auxiliary eyeglasses is provided (wherein the combination of the primary eyeglasses and the auxiliary eyeglasses is easily accomplished and does essentially
5 no damage to the clamping plates).

In another embodiment of the present invention the clamping plates define an enlarged receiving opening between the clamping plates, so that the movement of the insert into the space between the clamping plates is easily accomplished.

In another embodiment of the present invention the insert may have one or two
10 truncated corners (wherein the truncated corners may correspond to the space between the clamping plates so that the movement of the insert into the space between the clamping plates is easily accomplished).

In another embodiment of the present invention the insertion of a bridge into a retainer generates essentially no bending force to either an upper clamping plate or a lower clamping
15 plate during an initial stage of a combination between a first pair of eyeglasses and a second pair of eyeglasses until the rib associated with the bridge is inserted into the retainer (because, in this embodiment, the rib is formed on a rear portion of the bridge and the restricting groove of the retainer is defined in a front portion of an inner face of the lower clamping plate).

In another embodiment of the present invention the insertion of a first bridge and a
20 second bridge generates essentially no bending force to either an upper clamping plate or a lower clamping plate during an initial stage of a combination between a first pair of eyeglasses and a second pair of eyeglasses until at least one of the ribs associated with the first and second bridges is inserted into the retainer (because, in this embodiment, the first and second ribs are formed respectively on a rear portion of the first and second bridges and the two restricting

grooves are defined in the front portion of the inner face of the lower clamping plate).

While a number of embodiments of the present invention have been described, it is understood that these embodiments are illustrative only, and not restrictive, and that many modifications may become apparent to those of ordinary skill in the art. For example, the
5 various mounting elements (e.g., ribs, grooves, etc.) may be mounted on any desired combination of surfaces (e.g., any combination of upper and/or lower surfaces). Further, any desired number of corresponding mounting elements may be utilized.